

WHAT IS CLAIMED IS:

1. An image processing method for making image gradation modulation to receive a multi-tone image, and generate image data of a low gradation number by quasi halftone processing, wherein the dot arrangement of image after said gradation modulation is a mixture of a periodic dot output region and a non-periodic dot output region.
2. An image processing method according to claim 1, wherein said periodic dot output region is an intermediate and high thickness region of image.
3. An image processing method according to claim 1, wherein said non-periodic dot output region is a low thickness region of image.
4. An image processing method according to claim 1, wherein said non-periodic dot output region is an edge portion of image.
5. An image processing method according to claim 1, wherein error diffusion method or mean error minimization method is applied to said periodic dot output thickness region, and a threshold matrix for periodic dot output is used for threshold values.
6. An image processing method according to claim 1, wherein error diffusion method or mean error minimization method is applied to said non-periodic dot output thickness region, and a threshold matrix for non-periodic dot output is used for threshold values.
7. An image processing method according to claim

5, wherein error weighting coefficients that are used for propagation of error in said error diffusion method or said mean error minimization method applied to said periodic dot output thickness region are different from those used for propagation of error in said error diffusion method or said mean error minimization method applied to said non-periodic dot output thickness region.

8. An image processing method according to claim 1, wherein the dots generated in said periodic dot output thickness region are of a dot concentrated type.

9. An image processing method according to claim 1, wherein the dots generated in said non-periodic dot output thickness region are isolated.

10. An image processing method according to claim 1, wherein the error weighting coefficients used for propagation of error in the error diffusion method or mean error minimization method applied to said periodic dot output thickness region do not take the maximum for a pixel nearest to the pixel of interest.

11. An image processing apparatus for making image gradation modulation to receive a multi-tone image, and generate image data of a low gradation number by quasi halftone processing, said image processing apparatus comprising means for producing after said gradation modulation an image of which the dot arrangement has a mixture of a periodic dot output region and a non-periodic dot output region.

12. An image processing apparatus according to claim 11, further comprising means for deciding whether the dot arrangement of said image after said gradation modulation includes said periodic dot output region or said non-periodic dot output region.

13. An image processing apparatus according to claim 11, further comprising means for storing a threshold matrix for said periodic dot output, means for storing a threshold matrix for said non-periodic dot output, and means for selecting either one of said threshold matrix for said periodic dot output and said threshold matrix for said non-periodic dot output in accordance with the decision result from said decision means according to claim 12.

14. An image processing apparatus according to claim 11, further comprising means for making propagation of error by error diffusion method or mean error minimization method, means for storing error weighting coefficients for said periodic dot output, means for storing error weighting coefficients for said non-periodic dot output, and means for selecting either one of said error weighting coefficients for said periodic dot output and said error weighting coefficients for said non-periodic dot output in accordance with the decision result from said decision means according to claim 12.

15. An image processing apparatus according to

claim 11, further comprising means for detecting an edge portion in said received multi-tone image.

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